DOCUMENT RESUME

ED 161 961 TM 008 204

AUTHOR Haladyna, Tom
TITLE The Affective Reporting System.
PUB DATE 78
NOTE 45p.; For related document, see ED 139 837 ; Parts may not reproduce clearly due to print quality

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Attitude Tests; Correlation; Elementary Education; Factor Analysis; *Item Analysis; Program Attitudes; *School Attitudes; *Student Attitudes; Testing; *Test Reliability; *Test Validity
IDENTIFIERS *Affective Reporting System; Construct Validity; Me (Test); Test Manuals; What I Like Best (Test)

ABSTRACT

The lack of a suitable research instrument on attitudes of elementary school children toward school and subject matters has limited the quality and extent of research on school attitudes. The Affective Reporting System was conceived to fill this need. It consists of two instruments--ME and What I Like Best (WILB), each possessing two versions: primary (grades 1-3) and intermediate (grades 4-6). The primary version measures attitudes toward reading, math, physical education, art and music; the intermediate version has added social studies and science. ME also has an attitude toward school scale. Both instruments measure essentially the same attitudes but in different ways--ME uses a three-point rating scale, while WILB uses the forced choice paired comparison technique. The results of a study of the reliability and construct validity of measures of attitudes are reported. Both tests were administered to 2,846 elementary school children. Internal consistency estimates of reliability for ME were reasonably high while WILB had less than satisfactory reliability estimates. Construct validity was clearly demonstrated for ME; WILB lacked construct validity when used in the primary grades sample and possessed moderate construct validity when used with the intermediate grades sample. It was concluded that these tests could efficiently provide reliable and construct valid measures of attitudes in a wide variety of applications. Instructions for administering, scoring, and interpreting ME and WILB, as well as forms of each test, are included. (Author/CP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED161961

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

The Affective Reporting System

Tom Haladyna

Teaching Research Division
Oregon State System of Higher Education
1978

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Tom Haladyna
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

TM 008 204

Includes: The Validation of the Affective Reporting System
Instructions for "ME"
Instructions for "What I Like Best"

ABSTRACT

The Validation of the Affective Reporting System

Tom Haladyna
Teaching Research Division
Oregon State System of Higher Education

The lack of a suitable research instrument on attitudes of elementary school children toward school and subject matters has limited the quality and extent of research on school attitudes. The Affective Reporting System was conceived to fill this need. The results of a study of the reliability and construct validity of measures of attitudes are reported. A battery of two tests was administered to 2,846 elementary school children. Internal consistency estimates of reliability for one instrument were reasonably high while the second instrument had less than satisfactory reliability estimates. Construct validity was clearly demonstrated for the first instrument and the second lacked construct validity when used in the primary grades sample and possessed moderate construct validity when used with the intermediate grades sample. It was concluded that these tests could efficiently provide reliable and construct valid measures of attitudes in a wide variety of applications.

TM008 204

95

A version of
(This paper will appear in Journal of Educational Measurement, Spring, 1979.)

THE VALIDATION OF THE AFFECTIVE REPORTING SYSTEM

Tom Haladyna
Teaching Research Division
Oregon State System of Higher Education

The attitude of students toward school and various subject matters has been widely studied and generously supported (e.g., Aiken, 1970, 1976; Coleman, Campbell, Hobson, McPartland, Mood, Winefeld, and York, 1966; Crosswhite, 1972). Typically there are two kinds of rationale motivating this research. First, attitudes are believed to be related to scholastic achievement. Second, only recently has the development of school attitudes become a goal of education (McPartland and Epstein, 1976; Oregon State Department of Education, 1974).

Despite this widespread activity in attitude research and the recent interest in developing positive attitudes in students as an outcome of schooling, there has been widespread discontent with the quality and number of instruments available which measure attitudes of elementary schoo students toward school and various subject matters (Roshal, Frieze, and Wood, 1971; Meier and McDaniel, 1974; Engin, Wallbrown, and Brown, 1976; Perney, 1975; Green and Zirkel, Note 1; Knaupp, 1973).

Deck and Barnett (Note 2) reviewed a large number of reading attitude scales, and they reported a number of psychometric deficiencies which include:

1. failure to report reliability estimates,
2. no evidence of item analysis,
3. ceiling effects on the scales,
4. little evidence for validity,
5. difficult-to-understand questions, and
6. only one scale designed to tap primary grade children's attitudes.

Aiken (1976) reports similar problems with math attitude scales. In no instances were there any instruments designed to tap attitudes toward a wide variety of subject matters with one instrument.

The Affective Reporting System (ARS) was conceived to fill such a need. In this report, the first in a series of validity studies is presented. The primary objectives of this study were to.

1. examine the internal consistency type of reliability of the scales of the two instruments of the ARS; and
2. examine the relationships among the items and scales of the instruments with respect to accumulating evidence regarding the construct validity of these scales as they may be used in descriptive and experimental studies of elementary school students' attitudes.

CONSTRUCT VALIDITY

Cronbach and Meehl (1955) describe the procedures involved in establishing the construct validity of measures as being formulation, explication, and validation. Formulation requires a formal statement of the abstract traits to be measured, explication involves a mapping of measures of each trait to the descriptions, and validation involves the testing of hypotheses regarding the traits and the measures of each trait. The balance of this report will be devoted to the construct validity of measures of attitudes derived from the two instruments which comprise the ARS.

Formulation. The construct measured by the instruments are simply conceived and unidimensional, although this position is not intended to reject the notion that such attitudes can be fruitfully defined in terms of a constellation of traits such as attitude toward reading as a hobby, attitude toward a mathematics teacher, and other specific aspects of attitudes

toward school and subject matters. Simply stated, an attitude is taken to be an emotional tendency for or against an object, and the objects in these instances are school and five to seven subject matters.

No attempt is made in this formulation to tie these constructs to a theoretical position. The intention here is to provide instrumentation that will assist researchers in measuring constructs which are useful in theoretical and applied efforts, descriptive and experimental studies, and evaluation research (Thomas, 1977; Haladyna and Thomas, 1976). In fact, these instruments have been used in descriptive studies (Haladyna and Thomas, Note 3). Further, it is believed that these instruments have utility as a tool for simple classroom observation of attitudes of students toward school and subject matters, much in the manner in which classroom achievement data is routinely collected. In this context, both achievement and attitudinal data then serve as a basis for evaluating the effects of teacher-established programs.

Explication. The ARS is comprised of two instruments, ME and WHAT I LIKE BEST (WILB), each possessing two versions, one for the primary grades and one for the intermediate grades. The primary intent of each instrument is to measure attitudes toward five subject matters in the primary version and seven in the intermediate grades version. ME additionally has an attitude toward school scale. ME consists of five items for each trait, each item being a three point rating scale where happy, neutral, and sad faces are used as the response options. For each object (school and the subject matters), five item forms are employed with the keyword varying with the trait being measured. The set of questions for the school attitude scale is phrased:

What face do you wear....

when it is time for school?

during school?

when school is over?

when vacation ends?

if you never had to go to school again?

Students are asked to mark an "X" on the appropriate face on their answer sheet. For the primary grades there are five sets of these questions for the school, reading, math, PE, art, and music; while the intermediate grades version has seven sets including the above subject matters and in addition, social studies and science. Scores range from a possible 0, indicating a negative attitude, to 10, indicating a positive attitude.

The second instrument, WILB, is a pair-comparison technique where all 10 possible pairs of five subject matters in the primary grades version and all 21 possible pairs of seven subject matters in the intermediate grades version are compared. Scores on WILB may vary from 0 to 4 on the primary grades version and 0 to 6 on the intermediate grades version. As conceived, WILB forces a choice on subject matters and therefore renders an ordering of subject matters for each examinee. The consequence of using WILB is that not all traits can be highly or lowly rated. With ME, responses for one subject matter do not necessarily affect responses for others. Thus there is a slight difference in how the instruments measure as well as what is being measured. It is hypothesized that both instruments sufficiently measure the same attitudes as described.

Validation. If these measures of attitudes possess sufficient construct validity to be useful for the purposes described earlier in this paper, it becomes apparent that all scales should possess adequate reliability estimates for the respective scales. Since reliability can be conceptualized in three ways, internal consistency, stability, and equivalence of parallel measures, it is important to select and study the appropriate approach. The concern here is for the existence of a trait which can be measured with a collection

of several items. Therefore, the more conventional internal consistency approach to reliability appears most appropriate. Consequently, the degree of internal consistency reliability for these measures is one of the focii of the present study. Future studies are planned with respect to the stability of the measures in repeated use, and one pilot study will be reported in this paper which will attest to the equivalence of ME and WILB as nearly parallel measures of the same traits.

The second focii of the study will be that of examining the correlational patterns among items and scales in the framework of a multi-trait-multi-method framework as proposed by Campbell and Fiske (1959) and for the purpose of establishing the convergent and discriminant validity of these measures. A factor analysis of items was also performed to determine if items hypothesized as indicators of attitudes were empirically related.

METHOD

Sample

In a statewide survey of teachers of mathematics (Haladyna, 1975), nearly 300 elementary school teachers volunteered to participate in a study of children's attitudes. These teachers represented all teachers in the state of Oregon with respect to regions of the state and grade levels. Questionnaire data revealed that these teachers were slightly more involved in mathematics education than the normal classroom teacher, thus the sample of teachers was biased in this direction. However, this sample of teachers resembled the population of teachers in this state with respect to numerous factors. Of the 300 original volunteers, less than 250 actually participated, and 2,846 elementary grade children completed the ARS.

Procedure

Teachers who volunteered in the study were given the ARS with permission to use the tests and keep the record-keeping forms for personal classroom use with the promise that all test data would be returned to the researchers. The tests were administered by teachers to their classes. A guide was created to advise teachers on how to administer and use the instruments.[1]

Complete test data was distributed in sufficient numbers across grades one to six. These data were tabulated, and correlations were computed among all items and among scales of each respective instrument.

Alpha estimates of reliability were computed for ME. For WILB, an internal consistency estimate of reliability was computed by obtaining the average of correlations among all items of any one scale and then using the Spearman-Brown prophecy formula, a procedure suggested by Nunnally (1967). The author will testify to the fact that this procedure leads to estimates that very nearly approximate more conventional alpha or KR-20 estimates of homogeneity when applied to similar test data.

A principal component factor analysis with quartimax rotation was done on items to determine if items loaded on the factors originally hypothesized to be represented by the scales, namely, the five to seven subject matters and attitude toward school. The quartimax rotation is appropriate when the factors hypothesized are believed to be equally represented by the data (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975).

RESULTS AND DISCUSSION

ME

The correlations among the scales of ME and alpha, internal consistency reliability estimates for both primary and intermediate grades are presented

[1] The entire ARS package may be obtained for the purposes of conducting research at cost from the author.

in Table 1. As shown there, the internal consistency reliability estimates ranged from .61 to .85 for the primary grades sample and from .63 to .89 for the intermediate grades sample. Except for the reading and school attitude scales, the other scales were consistently unrelated. An analysis of item responses revealed that the second item in the school scale and the fourth item in the reading scale were only slightly related to other items of their respective scales. This would seriously undermine the internal consistency of each five-item scale. As a result, the low internal consistency estimates for these first two scales appear to be attributable to these faulty items.

- - - - - - - - - - -
Insert Table 1 here
- - - - - - - - - - -

Correlations among these scales were low enough to provide some evidence as to the independence (discriminant validity) of each trait as a separate attitude measure. In the primary grades, these correlations ranged from .10 to .37, the highest correlation occurring between the reading and school scales. These results were replicated with the intermediate grades sample where the correlations ranged from .09 to .38, the exception being where reading and mathematics were highly correlated with attitude toward school. Although statistically significant, the practical significance of such correlations is indeed small. The mathematics scale accounted for a little more than 14% of the variance of scores representing attitude toward school.

WILB

Correlations among scales and internal consistency reliability estimates are presented in Table 2 for both primary and intermediate grades samples. As shown there, the results for ME are by and large replicated with WILB. The homogeneity estimates for both primary and intermediate grades samples were low. This can be better understood by noting that each scale consists

Table 1

Correlations Among Scales of ME

	School	Reading	Math	PE	Art	Music	Social Studies	Alpha[1] Reliability Estimates Primary	Intermediate
School	-	37	32	13	10	27		61	63
Reading	35	-	31	15	21	28		63	70
Math	38	16	-	14	15	22		81	83
PE	12	09	11	-	27	23		74	78
Art	10	09	10	17	-	27		81	84
Music	23	17	15	07	17	-		85	89
Social Studies	27	29	22	11	11	14	-	-	87
Science	22	19	17	16	13	17	29	-	89

[1] Above diagonal represents the primary grades sample, n = 966. Below diagonal respresents the intermediate grades sample, n = 1880.

of only four to six items and the fact that a response to any item affects two scales. This seems to mitigate against high internal consistency estimates for reading, which were the lowest of all subject matters regardless of the sample, primary or intermediate.

- - - - - - - - - - -
Insert Table 2 here
- - - - - - - - - - -

The correlations among all scales of WILB for both samples were negative due to the nature of the forced-choice pair comparisons. It should be recognized that the two instruments, ME and WILB, although intended to measure the same construct, actually represent two uniquely different approaches to the measurement of the same constructs. ME allows scale scores to vary without any dependence upon the manner in which other scale scores are created. Consequently, there is a more ordinal tendency to the data obtained from WILB. As shown in Table 2, the correlations for the primary grades range from -.02 to -.37 and for the intermediate grades, from -.02 to -.27. As in the instance with ME, the independence of the scales or the discriminant validity is amply demonstrated.

Multi-trait-Multi-method Analysis of Items

Multi-trait, multi-method matrixes were formed for item responses for the primary and intermediate grades samples for ME and WILB and are presented in summary form in Table 3. Average correlations among items representing each scale are contrasted with the average correlation of items not so linked. As shown in this table, the average correlations among items for each scale is much higher than the correlations of items with items of different scales. Because of the lower reliability estimates which were a product of single faulty items in each scale, reading and school attitude scales had the lowest inter-item correlations in the primary grades. This

Table 2

Correlations Among Scales of WILB

	Reading	Math	PE	Art	Music	Social Studies	Internal Consistency[1] Reliability Estimates Primary	Intermediate
Reading	-	-11	-37	-35	-18		.42	.55
Math	-12	-	-30	-35	-36		.56	.69
PE	-22	-13	-	-02	-22		.38	.68
Art	-14	-27	-06	-	-23		.45	.65
Music	-15	-26	-15	-02	-		.42	.66
Social Studies	-11	-14	-20	-24	-21	-	-	.63
Science	-21	-18	-19	-19	-25	-02	-	.69

[1]Above diagonal represents the primary grades sample, n = 978. Below diagonal represents the intermediate grades sample, n = 1904.

effect of faulty items was not as prevalent in the intermediate grades where school and reading scales exhibited the highest inter-item correlation. Whatever ambiguity exists in the faulty items in the attitude scales towards school and reading in the primary grades seems to have evaporated by the fourth grade.

- - - - - - - - - - - - - - -
Insert Table 3 here
- - - - - - - - - - - - - - -

These results are not as clearcut with WILB. The average inter-item correlations for each scale were only slightly higher than the average correlation of any item with an item from a different scale. It is evident that the reading scale is one of the least internally consistent for both the primary and the intermediate grades samples, and this did not occur as a result of faulty items. These results suggest that the reading construct, as conceived in this study, may not be as valid as others in the ARS.

Factor Analysis of Items

The factor analysis of these data should contribute further to the assessment of the discriminant and convergent validity of these scales as measures of the constructs, and particularly with the reading scales. The results of the factor analyses for ME and WILB are summarized in Tables 4 and 5.

- - - - - - - - - - - - - - -
Insert Tables 4 and 5 here
- - - - - - - - - - - - - - -

A remarkably clear factor structure was revealed in both the primary and intermediate grades samples for ME, as shown in Table 4. With the primary sample for ME, factor loadings for each trait were consistently high for the first four traits and slightly unstable for reading and school scales. A source of systematic bias was introduced by the tendency to

Table 3

Correlations Among Items of ME

Average Correlations[1] Among Items Representing:	Primary Grades (n = 966)	Intermediate Grades (n = 1880)
School	.24	.63
Reading	.26	.70
Math	.45	.42
PE	.32	.63
Art	.46	.58
Music	.54	.61
Social Studies	-	.40
Science	-	.51
All other correlations	.12[2]	.10[3]

[1]Each average is based on ten correlations.

[2]Based on a total of 375 correlations.

[3]Based on a total of 700 correlations.

Correlations Among Items of WILB

Average Correlations[1] Among Items Representing:	Primary Grades (n = 978)	Intermediate Grades (n = 1904)
Reading	.17	.11
Math	.24	.22
PE	.13	.27
Art	.17	.27
Music	.15	.25
Social Studies	-	.23
Science	-	.24
All other correlations	.07[2]	.05[3]

[1]Each average is based on six correlations for the primary grades version, and 15 correlations for the intermediate grades version.

[2]Based on a total of 15 correlations.

[3]Based on a total of 105 correlations.

Table 4

Factor Loadings of Items of ME

Factor Loadings of Items Hypothesized as Indicators of Traits Shown on the Left

	Primary Grades Loading[1] n = 966	% of Accounted Variance	Intermediate Grades Loading n = 1880	% of Accounted Variance
Math	63, 63, 65, 66, 74	36	61, 63, 64, 75, 80	10
Music	61, 69, 72, 75, 81	16	68, 77, 77, 85, 85	28
Art	59, 63, 65, 73, 74	13	64, 77, 77, 85, 85	12
PE	51, 51, 60, 62, 69	10	56, 64, 69, 73, 77	9
Reading	13, 52, 53, 54, 68	9	23, 53, 62, 64, 74	7
School	28, 44, 45, 53, 56	8	29, 46, 46, 49, 58	5
Item 3[2]	16, 36, 40, 48, 42, 32	5	18, 32, 34, 43, 43, 27, 27, 26	3
Item 5[2]	34, 41, 38, 28, 21, 22	3	41, 37, 43, 21, 19, 19, 26, 29	2
Social Studies			68, 69, 76, 78, 80	11
Science			70, 73, 76, 82, 82	13

[1] decimal omitted.

[2] These factors failed to meet the eigenvalue criterion of 1.00.

Table 5

Factor Loadings of Items of WILB

	Primary Grades	% of Accounted Variance	Intermediate Grades	% of Accounted Variance
PE	did not factor		50, 51, 53, 54, 62	25
Math	41, 44, 55, 65	40	43, 44, 45, 57, 58, 67	21
Music	did not factor		35, 38, 47, 58, 58, 68	18
Art	did not factor		87, 44, 51, 53, 54, 62	15
Science	--		45, 48, 51, 57, 63	12
Social Studies	--		31, 36, 37, 45, 67	9
Reading	did not factor		did not factor	

respond similarly to third and fifth items of every attitude scale (i.e., "What face do you wear when.... is over?" and "What face would you wear if you never had to go to.... again?"). The tendency to respond to every third and fifth question, albeit a minor tendency, appears to reflect an attitude toward school in general which invades other scales. With the intermediate grades sample for ME, the order of the factors varied in per cent of accounted variance, but factor loadings for most scales ranged for .56 to .85, the notable exceptions being attitudes toward reading and school. Again, the two factors representing an instrument bias were detected, but they were of negligible magnitude, accounting for only six per cent of the total variance.

The factor analyses of WILB were less fruitful. First, the low internal consistency of the scales of WILB appeared to have seriously undermined the chances of a clear resolution of factors. As shown in Table 5, no factor structures were observed other than one for math. The results of the factor analysis of WILB for the intermediate grades sample indicated moderately high factor loadings for all items as expected with the notable exception of reading which did not factor. Loadings ranged from .34 to .67 for items conceptually related to the trait.

A small study was conducted with 71 fourth graders to investigate the relationship between ME and WILB. This study precedes a similar study on a larger scale, which is presently being conducted. A third instrument was constructed which is considerably longer and more complex, tapping not only attitudes toward subject matters but attitudes toward specific types of activities in instruction. (Because this instrument, the Preference Inventory, was extremely inefficient, it has been subsequently dropped from use.) The Preference Inventory was employed in this study to develop some evidence for convergent validity and equivalence of the measures as indicators of the same attitudes.

The three instruments were administered to all 71 students, scored and tabulated. Correlations were computed among all scales of the three instruments. Correlations among measures of the same trait were expected to exceed correlations among scales of the same instrument as well as correlations between scales not hypothesized to measure the same trait. The results of these analyses, summarized in Table 6, reveal that correlations between ME and WILB were significantly higher ($p < .001$) than all other sets of correlations. One of the best measures of the convergent validity of two measures is not the correlation coefficient but the coefficient corrected for attenuation. That is, by correcting for the unreliabilities of measurement, one can answer the question: Do the scales appear to measure the same trait? A corrected coefficient should be substantial.

- - - - - - - - - - -
Insert Table 6 here
- - - - - - - - - - -

The results displayed in Table 6 indicate some mixed evidence. Math, science, and PE scales had sufficiently high corrected coefficients, while the other scales possessed moderate to low correlations. Mean correlations within conceptually unrelated WILB items, and conceptually unrelated ME items, and between conceptually unrelated ME and WILB items were of the magnitude -.19 for WILB, +.19 for ME, and .06 between ME and WILB. Despite these low means, the ranges were fairly wide with correlations occasionally exceeding the correlations reported between conceptually related scales. The analysis dealing with the Preference Inventory provided meager support for the convergent validity of ME and WILB. This can be explained by the apparent lack of high internal consistency of PI's scales coupled with its apparently low construct validity.

Table 6

Equivalence and Concurrent Validity of
Three Measures of Attitudes Toward
School and Subject Matters

Average Correlations Among Items Representing:	PI and WILB	PI and ME	ME and WILB	Corrected for Attenuation ME and WILB
Reading	.28	.32	.37	.59
Social Studies	.35	.45	.45	.58
Math	.23	.38	.63	.83
Science	.28	.45	.54	.72
PE	.11	.08	.59	.81
Art	.11	.34	.30	.41
Music	.24	.51	.29	.38

Other Correlations:	Mean	Range
Items within WILB not conceptually related	-.19	-.02 to -.35
Items within ME not conceputally related	.19	.05 to .47
Items between ME and WILB not conceptually related	.06	-.24 to .35

CONCLUSIONS

The following statements appear justified by the data presented:

1. The two instruments of the ARS appear to most suitably serve several different purposes although they appear to be conceptually and empirically related.
2. Internal consistency estimates for ME were sufficiently high for all scales except reading and school where faulty items appear to have attenuated the reliabilities of these scales. Perhaps a revision of these suspect items would improve these reliability estimates to the level of companion scales.
3. Internal consistency estimates for WILB were not sufficiently high on all scales, particularly reading. Item deficiencies do not appear to be the reason for these low estimates. Instead the few items comprising each scale may be more directly related to these lower estimates.
4. Correlations among scales of ME and WILB were low enough to suggest an independence of these scales as separate measures, one type of evidence of discriminant validity.
5. The rather clear factor structures exhibited for data from both samples suggests that ME operates effectively with younger as well as older students. With WILB, this is clearly not the case. Factor structures for the primary grades sample were unclear except for math; while the factors were more prominent with the intermediate grades sample.

Despite the rather stronger showing for ME as contrasted with WILB, Haladyna and Thomas (Note 3) have reported some aspects of these instruments in a large scale assessment which seem to indicate more construct validity

than is indicated in this study. First, both ME and WILB showed a steady and somewhat predictable decline in student attitudes toward school as a function of grade in school. Second, PE and Art were more consistently rated higher than other subject matters with both instruments, while attitudes toward school and social studies were distinctly lower than other average ratings. Finally, boy-girl differences were reported in predictable patterns. Their study seems to indicate that predictable trends and group differences are borne by the data in this large scale assessment regardless of the instrument used. According to Cronbach and Meehl (1955), replication of results by similar instruments and the confirmation of predictions are two forms of evidence that attest to the construct validity of the measures of instruments.

A study is presently being conducted to determine the relationships between attitude measures obtained through the use of ME and WILB and biographical and achievement variables. This descriptive study will also provide data regarding the concurrent validity of the two instruments for the scales which are derived. Further, the study will reflect the use of ME and WILB across the broadest context of public school education, encompassing grades one to 12. Consequently the work extends the present validity study as well as represents the first of a series of programmatic studies on the impact of schooling on attitudes toward the institution of school and its subject matters.

Both instruments of the ARS appear to be suitable for descriptive and experimental studies of attitude as well as for evaluation research where attitudes are reflected by the objectives of the evaluation. The ARS, and particularly ME, appear adaptable to different populations (i.e., primary grades to high school) as based on this as well as some pilot studies. The existence of a set of norms for both instruments based on a large scale assessment (Haladyna and Thomas, Note 3) is another valuable asset of the ARS.

One of the most attractive features of the ARS seems to be the ease and efficiency at which it can be administered, scored, and recorded, which is less than one hour per class. Finally, there is also ample evidence from field tests that teachers support the notion of measuring attitudes (Haladyna, 1975) and students enjoy taking the tests, a factor which is not always present in school testing.

REFERENCE NOTES

1. Greene, J. F. & Zirkel, P. A. A review of instrumentation to assess reading attitudes in the elementary grades. A paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1976.

2. Deck, D. & Barnette, J. J. Measuring attitudes toward reading in a large scale assessment. A paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1976.

3. Haladyna, T. & Thomas, G. The attitudes of elementary school children toward school and subject matters. A paper presented at the annual meeting of the American Educational Research Association, New York, 1977.

REFERENCES

Aiken, L. R. Attitudes toward mathematics. Review of Educational Research, 1970, 40, 551-596.

Aiken, L. R. Jr. Update on attitude and other affective variables in learning mathematics. Review of Educational Research, 1976, 46, 292-311.

Campbell, D. T. & Fiske, D. W. Convergent and discriminent validation by the multitrait-multi-matrix. Psychological Bulletin, 1959, 56, 81-105.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D. & York, J. Equality of educational opportunity. Office of Education, United States Department of Health, Education, and Welfare, 1966.

Cronbach, L. J. & Meehl, P. E. Construct validity in psychological tests. Psychological Bulletin, 52, 1955, 281-302.

Crosswhite, F. J. Correlates of attitudes toward mathematics. (NLSMA Reports, No. 20). Pasadena, California: A. C. Vroman, 1972.

Engin, A. W., Wallbrown, F. H. & Brown, D. H. The dimensions of reading attitude for children in the intermediate grades. Psychology in the Schools, 1976, 13, 309-316.

Epstein, J. L. & McPartland, J. M. The concept and measurement of the quality fo school life. American Educational Research Journal, 1976, 13, 15-30.

Haladyna, T. A statewide survey of teachers of mathematics. Monmouth, Oregon: Teaching Research, 1975.

Haladyna, T. & Thomas, G. An analysis of children's attitudes toward mathematics: The impact of OSME. Monmouth, Oregon: Teaching Research, 1976.

Knaupp, J. Are children's attitudes toward learning arithmetic really important? School Science and Mathematics, 1973, 73, 9-15.

Meier, R. & McDaniel, E. A measure of attitude toward school. Educational and Psychological Measurement, 1974, 34, 997-998.

Nie, W. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K. & Bent, D. H. Statistical package for the social sciences. New York: McGraw-Hill, 1975.

Nunnally, J. C. Psychometric theory. New York: McGraw-Hill, 1967.

Oregon State Department of Education. Minimum standards for Oregon public schools. Salem, Oregon, 1974.

Perney, J. The development and validation of the student opinion survey factor scales. Educational and Psychological Measurement, 1975, 35, 983-986.

Roshal, S. M., Frieze, I. & Wood, J. T. A multitrait-multimethod validation of a measure of student attitudes toward school, toward learning, and toward technology in sixth grade children. Educational and Psychological Measurement, 1971, 31, 999-1006.

Thomas, G. Field impact - Year IV: The oregon system of mathematics education. Monmouth, Oregon: Teaching Research, 1977.

INSTRUCTIONS FOR "ME"
(1-3)

(FIRST PASS OUT ANSWER SHEETS TO STUDENTS AND MAKE SURE EACH HAS A PENCIL WITH AN ERASER. THEN READ THE FOLLOWING INSTRUCTIONS.)

I AM GOING TO ASK YOU SOME QUESTIONS ABOUT WHAT YOU LIKE IN SCHOOL.

YOU CAN LET ME KNOW WHAT YOU LIKE BY MAKING AN "X" IN ONE OF THE THREE FACES.

IF I READ SOMETHING THAT MAKES YOU HAPPY PUT AN "X" ON THE HAPPY FACE.

IF I READ SOMETHING THAT MAKES YOU UN-HAPPY PUT AN "X" ON THE SAD FACE.

IF I READ SOMETHING AND YOU DON'T FEEL HAPPY OR SAD PUT AN "X" ON THE FACE IN THE MIDDLE.

ARE THERE ANY QUESTIONS?

(PAUSE AND RESPOND TO ALL QUESTIONS BEFORE YOU GO ANY FURTHER.)

LET'S PRACTICE ON A COUPLE OF QUESTIONS.

FIND NUMBER 1 ON YOUR ANSWER SHEET.

DID EVERYONE FIND NUMBER 1? (OMIT THIS IF IT SEEMS INAPPROPRIATE FOR THE AGE LEVEL OF YOUR CLASS.)

NUMBER 1...WHAT FACE DO YOU WEAR...WHEN YOU GET YOUR FAVORITE TREAT?

(CHECK TO MAKE CERTAIN ALL STUDENTS HAVE RESPONDED.)

LET'S TRY ANOTHER ONE.

NUMBER 2...WHAT FACE DO YOU WEAR...WHEN IT'S TIME TO CLEAN UP YOUR ROOM?

DOES ANYONE HAVE ANY QUESTIONS?

(PAUSE AND RESPOND TO ALL QUESTIONS.)

DOES EVERYONE UNDERSTAND WHAT WE ARE DOING?

THEN LET'S TRY THE REST.

(READ THE REMAINDER USING THE FOLLOWING FORMAT:
"NUMBER __...WHAT FACE DO YOU WEAR _____")

© Copyright Teaching Research 1975

QUESTIONS FOR GRADES 1 - 3

Number 1 ...What face do you wear...when it is time to go to school?
Number 2 ...What face do you wear...during school time?
Number 3 ...What face do you wear...when it is time to go home?
Number 4 ...What face do you wear...when vacation ends?
Number 5 ...What face would you wear...if you never had to go to school again?

Number 6 ...What face do you wear...when it is time for reading?
Number 7 ...What face do you wear...during reading time?
Number 8 ...What face do you wear...when reading is over?
Number 9 ...What face do you wear...when you have to read by yourself?
Number 10...What face would you wear...if you never had to go to reading again?

Number 11...What face do you wear...when it is time for math?
Number 12...What face do you wear...during math time?
Number 13...What face do you wear...when math is over?
Number 14...What face do you wear...when you're doing some math?
Number 15...What face would you wear...if you never had to go to math again?

Number 16...What face do you wear...when your teacher says that it is time for PE (Gym)?
Number 17...What face do you wear...during PE (Gym time)?
Number 18...What face do you wear...when your PE (Gym time) is over?
Number 19...What face do you wear...when you are doing something in PE (Gym)?
Number 20...What face would you wear...if you never had to go to PE (gym) again?

Number 21...What face do you wear...when your teacher says that it is time for art?
Number 22...What face do you wear...during art time?
Number 23...What face do you wear...when your art time is over?
Number 24...What face do you wear...when you are doing something in art?
Number 25...What face would you wear...if you never had to go to art again?

Number 26...What face do you wear...when it is time for music?
Number 27...What face do you wear...during music time?
Number 28...What face do you wear...when your music time is over?
Number 29...What face do you wear...when you are doing something in music?
Number 30...What face would you wear...if you never had to go to music again?

ME - Form P

Name _____ Age _____

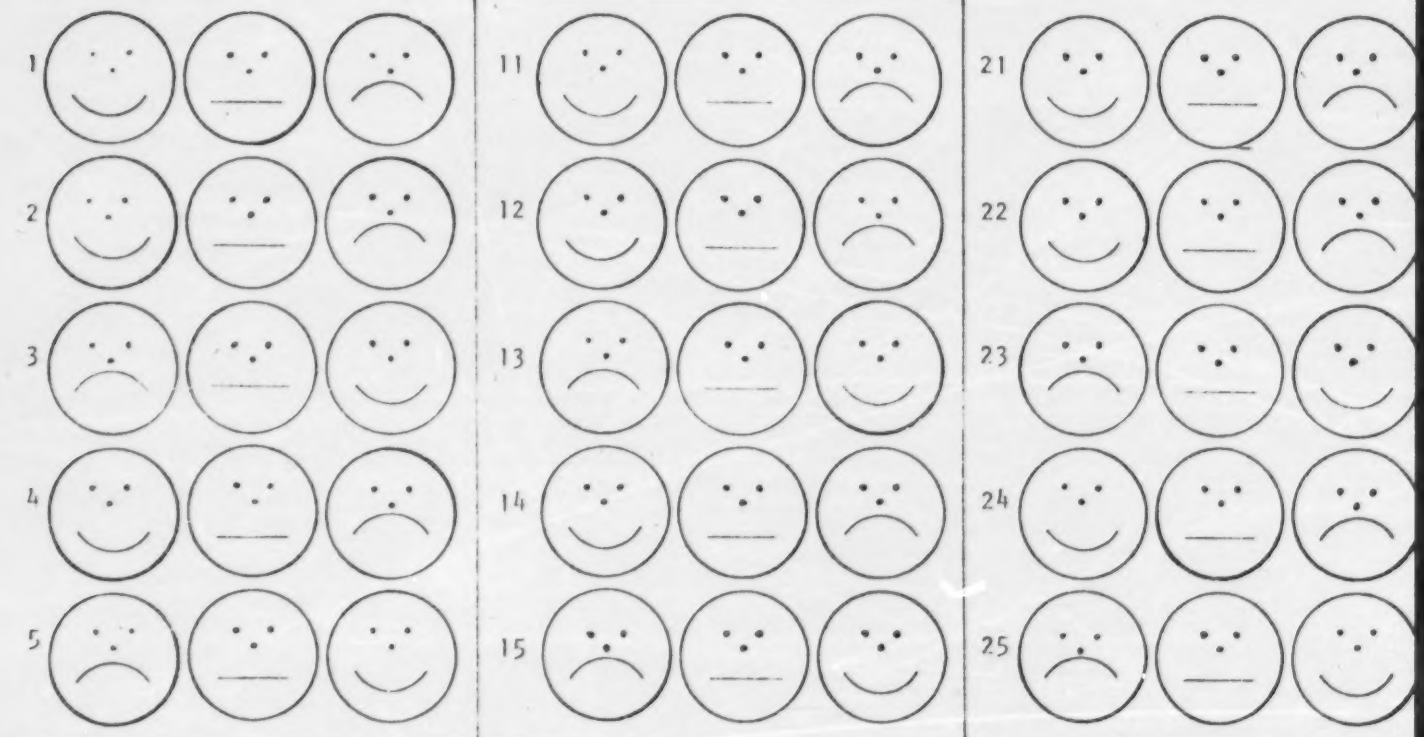
Grade _____ Boy ☐ Girl ☐

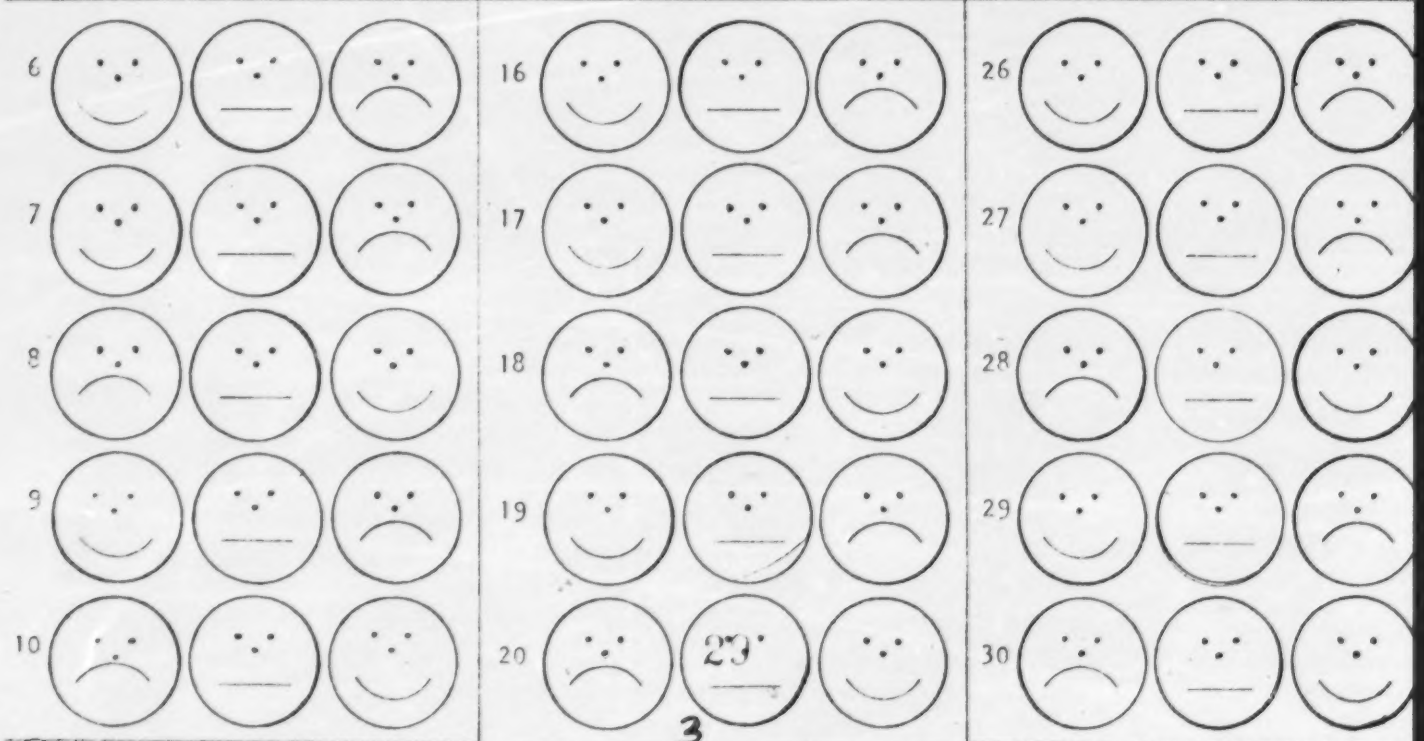
Older Brothers & Sisters # _____

Younger Brothers & Sisters # _____

A.

B.





SCORING PROCEDURES FOR "ME"

In order to score "ME" you will need a Cumulative Record Sheet for each student.

It may eventually be to the student's best interest to make the Cumulative Record Sheet a part of each student's cumulative folder.

You will need:

1. A pencil or felt tip pen.
2. An answer sheet from each student.
3. A cumulative record sheet for each student.

Procedures:

Score each student's answer sheet as follows:

1. All questions are grouped in a series of five which represent the various subject matter areas. As an exmaple, questions 1 through 5 focus on school; 6 through 10 focus on reading.

2. All groups of five questions are divided by a line on the answer sheet.

3. Assign a point value to the student's responses as follows:

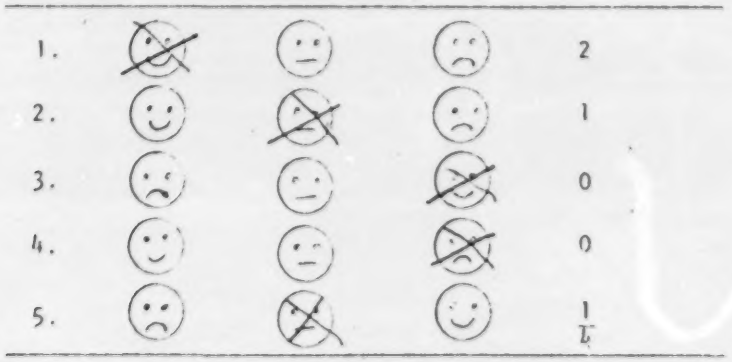
   2 points for a face marked in the first column of faces;

   1 point for a mark or the middle face;

   0 points for a face marked in the right most column.

   (Caution - these points should be assigned irrespective of whether or not the faces are happy, neutral or sad.)

Example:



In this example the student's score for attitude toward school is 4.

4. Find a score for each cluster of five questions for each student.

5. Record each student's responses of a separate Cumulative Record Sheet.

6. Write the student's name on a record sheet.

Name: John		1st Grade			
Date		11/2/76			
School	☺	10	10	10	10
	😐	5	5	5	5
	☹	0	0	0	0

7. Record the date/month/year of testing in the appropriate grade level.

8. Record the student's score on the sheet for each cluster of five questions. (The example above was a score of 4 on the school scale.)

9. When "ME" is used again you can connect the separate scores to produce a graphic representation of what is happening to the student's attitudes across time and grade levels.

INSTRUCTIONS FOR "TE"

(Grades 4-8)

(FIRST PASS OUR ANSWER SHEETS TO STUDENTS AND MAKE SURE EACH HAS A PENCIL WITH AN ERASER. THEN READ THE FOLLOWING INSTRUCTIONS.)

I AM GOING TO ASK YOU SOME QUESTIONS ABOUT WHAT YOU LIKE IN SCHOOL.

YOU CAN LET ME KNOW WHAT YOU LIKE BY MAKING AN "X" IN ONE OF THE THREE FACES.

IF I READ SOMETHING THAT MAKES YOU HAPPY PUT AN "X" ON THE HAPPY FACE.

IF I READ SOMETHING THAT MAKES YOU UN-HAPPY PUT AN "X" ON THE SAD FACE.

IF I READ SOMETHING AND YOU DON'T FEEL HAPPY OR SAD PUT AN "X" ON THE FACE IN THE MIDDLE.

ARE THERE ANY QUESTIONS?

(PAUSE AND RESPOND TO ALL QUESTIONS BEFORE YOU GO ANY FURTHER.)

LET'S PRACTICE ON A COUPLE OF QUESTIONS.

FIND NUMBER 1 ON YOUR ANSWER SHEET.

DID EVERYONE FIND NUMBER 1? (OMIT THIS IF IT SEEMS INAPPROPRIATE FOR THE AGE LEVEL OF YOUR CLASS.)

NUMBER 1...WHAT FACE DO YOU WEAR...WHEN YOU GET YOUR FAVORITE TREAT?

(CHECK TO MAKE CERTAIN ALL STUDENTS HAVE RESPONDED.)

LET'S TRY ANOTHER ONE.

NUMBER 2...WHAT FACE DO YOU WEAR...WHEN IT'S TIME TO CLEAN UP YOUR ROOM?

DOES ANYONE HAVE ANY QUESTIONS?

(PAUSE AND RESPOND TO ALL QUESTIONS.)

DOES EVERYONE UNDERSTAND WHAT WE ARE DOING?

THEN LET'S TRY THE REST.

(READ THE REMAINDER USING THE FOLLOWING FORMAT:
"NUMBER __...WHAT FACE DO YOU WEAR _____")

© Copyright Teaching Research 1975

ALL ABOUT SCHOOL

Number 3 ...What face do you wear...when it is time to go to school?
Number 4 ...What face do you wear...during school time?
Number 5 ...What face do you wear...when it is time to go home?
Number 6 ...What face do you wear...when vacation ends?
Number 7 ...What face would you wear...if you never had to go to school again?

Number 8 ...What face do you wear...when it is time for reading?
Number 9 ...What face do you wear...during reading time?
Number 10...What face do you wear...when reading is over?
Number 11...What face do you wear...when you are doing something in reading?
Number 12...What face would you wear...if you never had to go to reading again?

Number 13...What face do you wear...when it is time for math?
Number 14...What face do you wear...during math time?
Number 15...What face do you wear...when math is over?
Number 16...What face do you wear...when your're doing some math?
Number 17...What face would you wear...if you never had to go to math again?

Number 18...What face do you wear...when your teacher says that it is time for PE (Gym)?
Number 19...What face do you wear...during PE (Gym time)?
Number 20...What face do you wear...when your PE (Gym time) is over?
Number 21...What face do you wear...when you are doing something in PE (Gym time)?
Number 22...What face would you wear...if you never had to go to PE (Gym) again?

Number 23...What face do you wear...when your teacher says that it is time for art?
Number 24...What face do you wear...during art time?
Number 25...What face do you wear...when your art time is over?
Number 26...What face do you wear...when you are doing something in art?
Number 27...What face would you wear...if you never had to go to art again?

Number 28...What face do you wear...when it is time for music?
Number 29...What face do you wear...during music time?
Number 30...What face do you wear...when your music time is over?
Number 31...What face do you wear...when you are doing something in music?
Number 32...What face would you wear...if you never had to go to music again?

Number 33...What face do you wear...when it is time for social studies?
Number 34...What face do you wear...during social studies time?
Number 35...What face do you wear...when social studies is over?
Number 36...What face do you wear...when you are doing social studies?
Number 37...What face would you wear...if you never had to go to social studies again?

Number 38...What face do you wear...when it is time for science?
Number 39...What face do you wear...during science time?
Number 40...What face do you wear...when science is over?
Number 41...What face do you wear...when you are doing something in science?
Number 42...What face would you wear...if you never had to go to science again?

© Copyright Teaching Research 1975

Number 41...What face do you wear...when it is time for career ed?
Number 42...What face do you wear...during career ed time?
Number 43...What face do you wear...when career ed time is over?
Number 44...What face do you wear...when you are doing something in career ed?
Number 45...What face would you wear...if you never had to go to career ed again?

ME - Form J

Name _____ Age _____

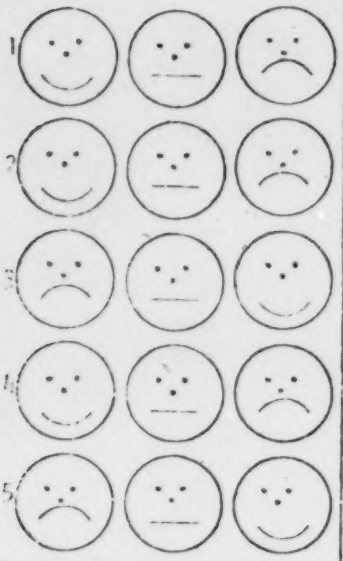
Grade _____ Boy ☐ Girl ☐

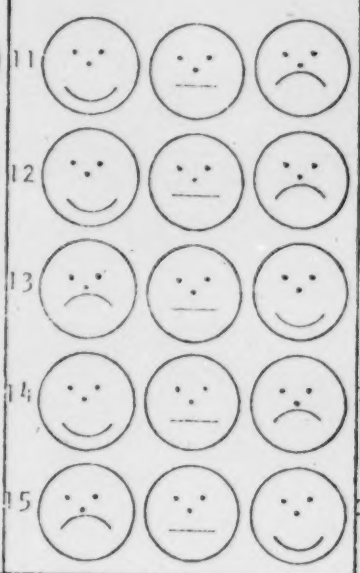
Older Brothers & Sisters # _____

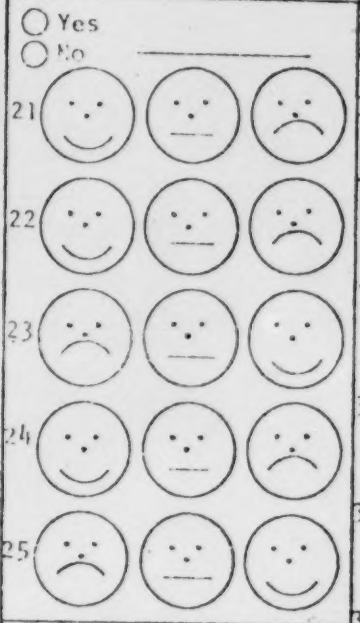
Younger Brothers & Sisters # _____

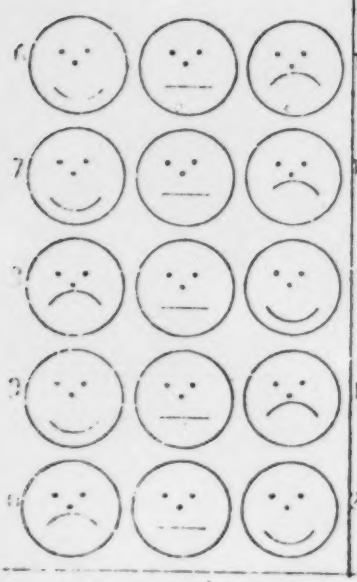
A.

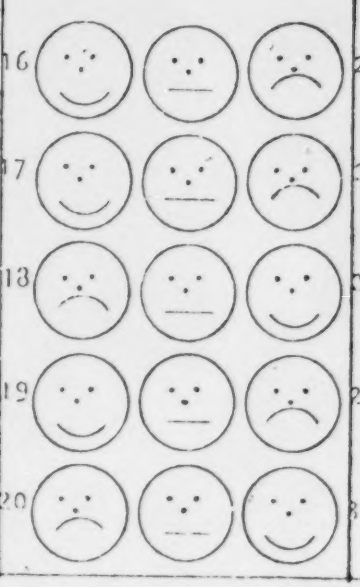
B.

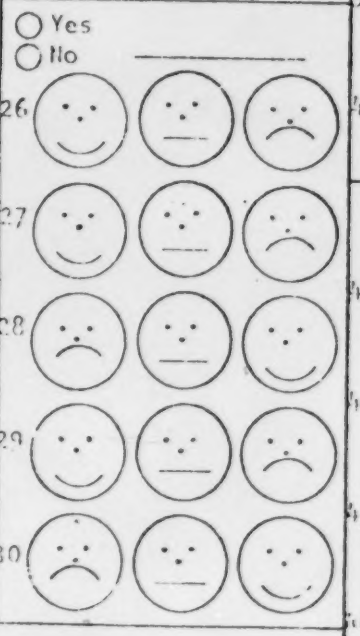


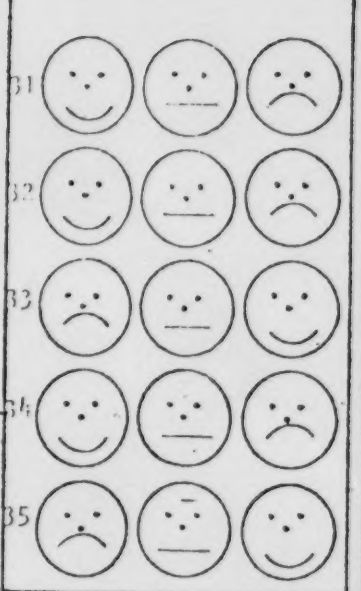


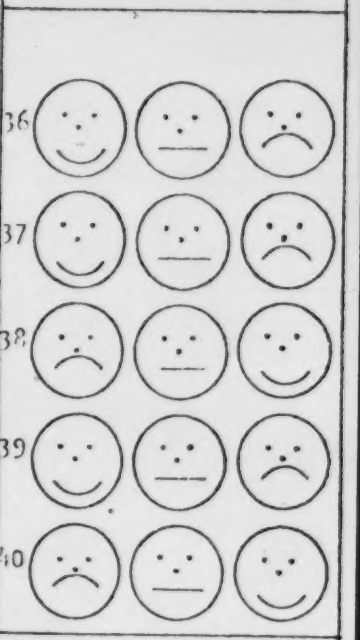


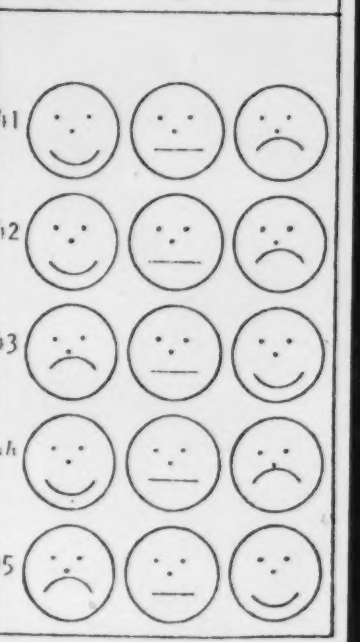












Copyright, Teaching Research, 1977.

INSTRUCTIONS FOR "WHAT I LIKE BEST"
(1-3)

(FIRST PASS OUT ANSWER SHEETS TO STUDENTS AND MAKE SURE EACH HAS A PENCIL WITH AN ERASER. THEN READ THE FOLLOWING INSTRUCTIONS.)

I AM GOING TO ASK YOU SOME QUESTIONS ABOUT WHAT YOU LIKE BEST IN SCHOOL.

EACH TIME I ASK A QUESTION YOU WILL HAVE TWO CHOICES, A AND B.

TELL ME WHICH YOU LIKE BEST BY PUTTING AN "X" IN ONE OF THE BOXES.

LET'S PRACTICE ON A COUPLE OF QUESTIONS.

FIND NUMBER 1 ON YOUR ANSWER SHEET.

DID EVERYONE FIND NUMBER 1? (OMIT THIS IF IT SEEMS INAPPROPRIATE FOR THE AGE LEVEL OF YOUR CLASS.)

NUMBER 1 ... WHICH DO YOU LIKE BEST ... A...TAKING A BATH OR ...B...WATCHING T.V.?

(CHECK TO MAKE CERTAIN ALL STUDENTS HAVE MARKED A CHOICE.)

LET'S TRY ANOTHER ONE.

NUMBER 2 ... WHICH DO YOU LIKE BEST ...A...RIDING A BIKE OR ...B...GOING TO BED?

DOES ANYONE HAVE ANY QUESTIONS?

DOES EVERYONE UNDERSTAND WHAT WE ARE DOING?

(PAUSE AND RESPOND TO ALL QUESTIONS)

THAN LET'S TRY THE REST.

(READ THE REMAINDER USING THE FOLLOWING FORMAT:
"NUMBER ____ WHAT DO YOU LIKE BEST ....A..._____ OR ...B..._____")

© Copyright Teaching Research 1975

WHAT DO YOU LIKE BEST?

Number 3 ...What do you like best...A...Reading or ...B...PE

Number 4 ...What do you like best...A...Music or ...B...Math

Number 5 ...What do you like best...A...PE or ...B...Art

Number 6 ...What do you like best...A...Math or ...B...PE

Number 7 ...What do you like best...A...Art or ...B...Reading

Number 8 ...What do you like best...A...Music or ...B...Art

Number 9 ...What do you like best...A...Reading or ...B...Math

Number 10 ...What do you like best...A...PE or ...B...Music

Number 11 ...What do you like best...A...Math or ...B...Art

Number 12 ...What do you like best...A...Reading or ...B...Music

© Copyright Teaching Research 1975

ame _____ Grade _____ ☐ Boy ☐ Girl

1	A WATCHING T.V.	OR	B TAKING A BATH	
2	A GOING TO BED	OR	B RIDING A BIKE	
3	A READING	OR	B P.E.	
4	A MUSIC	OR	B MATH	
5	A P.E.	OR	B ART	
6	A MATH	OR	B P.E.	
7	A ART	OR	B READING	
8	A MUSIC	OR	B ART	
9	A READING	OR	B MATH	
10	A P.E.	OR	B MUSIC	
11	A MATH	OR	B ART	
12	A READING	OR	B MUSIC	

© Copyright Teaching Research 1975

"What I Like Best"
Scoring Procedures

In order to score "What I Like Best" you will need a cumulative record sheet for each student.

It will eventually be to the students best interests to make the record sheet a part of each student's cumulative folder.

You will need:

1. a pencil
2. an answer sheet from each student
3. a cumulative record sheet for each student.

Procedures:

1. Fill in the name of the student on the "Cumulative Record Sheet."

2. Locate the appropriate grade level on the record sheet.

3. Enter the date and/or month of testing in the appropriate column space.

Grade	Date and/or month of testing				
	Sept. 27, 1975				

4. Reading the students responses make a tally mark for each choice made by the student opposite the subject matter headings.

Grade		Date and/or month of testing				
		Sept. 27, 1975				
4	Reading	II				
	Math	I				
	PE	I				
	Art	IIII				
	Music	II				

5. Summarize all of the students responses using this procedure.

Interpreting the data:

By summarizing the student responses as described above, you will have a profile of each student's subject matter preferences. If you collect this information at the beginning of each school year, you may be able to anticipate for each student, areas that may present instructional problems for you.

© Copyright Teaching Research 1975

INSTRUCTIONS FOR "WHAT I LIKE BEST"

(4-6)

(FIRST PASS OUT ANSWER SHEETS TO STUDENTS AND MAKE SURE EACH HAS A PENCIL WITH AN ERASER. THEN READ THE FOLLOWING INSTRUCTIONS.)

I AM GOING TO ASK YOU SOME QUESTIONS ABOUT WHAT YOU LIKE BEST IN SCHOOL.

EACH TIME I ASK A QUESTION YOU WILL HAVE TWO CHOICES, A AND B.

TELL ME WHICH YOU LIKE BEST BY PUTTING AN "X" IN ONE OF THE BOXES.

LET'S PRACTICE ON A COUPLE OF QUESTIONS.

FIND NUMBER 1 ON YOUR ANSWER SHEET.

DID EVERYONE FIND NUMBER 1? (OMIT THIS IF IT SEEMS INAPPROPRIATE FOR THE AGE LEVEL OF YOUR CLASS.)

NUMBER 1 ... WHICH DO YOU LIKE BEST ... A...TAKING A BATH OR ...B...WATCHING T.V.?

(CHECK TO MAKE CERTAIN ALL STUDENTS HAVE MARKED A CHOICE.)

LET'S TRY ANOTHER ONE.

NUMBER 2 ... WHICH DO YOU LIKE BEST ...A...RIDING A BIKE OR ...B...GOING TO BED?

DOES ANYONE HAVE ANY QUESTIONS?

DOES EVERYONE UNDERSTAND WHAT WE ARE DOING?

(PAUSE AND RESPOND TO ALL QUESTIONS)

THAN LET'S TRY THE REST.

(READ THE REMAINDER USING THE FOLLOWING FORMAT:
"NUMBER ____ WHAT DO YOU LIKE BEST ....A..._____ OR ...B..._____")

© Copyright Teaching Research 1975

WHAT DO YOU LIKE BEST?

Number 3 ...What do you like best...A...PE or ...B...Reading

Number 4 ...What do you like best...A...Music or ...B...Math

Number 5 ...What do you like best...A...Reading or ...B...Social Studies

Number 6 ...What do you like best...A...Social Studies or ...B...PE

Number 7 ...What do you like best...A...Music or ...B...Reading

Number 8 ...What do you like best...A...Social Studies or ...B...Math

Number 9 ...What do you like best...A...Art or ...B...Music

Number 10...What do you like best...A...Music or ...B...Social Studies

Number 11...What do you like best...A...Science or ...B...Music

Number 12...What do you like best...A...Math or ...B...Art

Number 13...What do you like best...A...Reading or ...B...Science

Number 14...What do you like best...A...PE or ...B...Art

Number 15...What do you like best...A...Math or ...B...Reading

Number 16...What do you like best...A...Science or ...B...PE

Number 17...What do you like best...A...Reading or ...B...Art

Number 18...What do you like best...A...Art or ...B...Social Studies

Number 19...What do you like best...A...Science or ...B...Math

Number 20...What do you like best...A...Art or ...B...Science

Number 21...What do you like best...A...PE or ...B...Music

Number 22...What do you like best...A...Math or ...B...PE

Number 23...What do you like best...A...Social Studies or ...B...Science

© Copyright Teaching Research 1975

Name _____ Grade _____ ☐ Boy ☐ Girl

1	A WATCHING T.V.	OR	B TAKING A BATH
2	A GOING TO BED	OR	B RIDING A BIKE
3	A P.E.	OR	B READING
4	A MUSIC	OR	B MATH
5	A READING	OR	B SOCIAL STUDIES
6	A SOCIAL STUDIES	OR	B P.E.
7	A MUSIC	OR	B READING
8	A SOCIAL STUDIES	OR	B MATH

9	A ART	OR	B MUSIC
10	A MUSIC	OR	B SOCIAL STUDIES
11	A SCIENCE	OR	B MUSIC
12	A MATH	OR	B ART
13	A READING	OR	B SCIENCE
14	A P.E.	OR	B ART
15	A MATH	OR	B READING
16	A SCIENCE	OR	B P.E.

17	A READING	OR	B ART
18	A ART	OR	B SOCIAL STUDIES
19	A SCIENCE	OR	B MATH
20	A ART	OR	B SCIENCE
21	A P.E.	OR	B MUSIC
22	A MATH	OR	B P.E.
23	A SOCIAL STUDIES	OR	B SCIENCE

© Copyright Teaching Research 1975

"What I Like Best"
Scoring Procedures

In order to score "What I Like Best" you will need a cumulative record sheet for each student.

It will eventually be to the students best interests to make the record sheet a part of each student's cumulative folder.

You will need:

1. a pencil
2. an answer sheet from each student
3. a cumulative record sheet for each student.

Procedures:

1. Fill in the name of the student on the "Cumulative Record Sheet."

2. Locate the appropriate grade level on the record sheet.

3. Enter the date and/or month of testing in the appropriate column space.

	Date and/or month of testing				
Grade	Sept. 27, 1975				

4. Reading the students responses make a tally mark for each choice made by the student opposite the subject matter headings.

		Date and/or month of testing				
Grade		Sept. 27, 1975				
4	Reading	II				
	Math	I				
	PE	I				
	Art	IIII				
	Music	II				
	Social Studies	III				
	Science	II				

5. Summarize all of the students responses using this procedure.

Interpreting the data:

By summarizing the student responses as described above, you will have a profile of each student's subject matter preferences. If you collect this information at the beginning of each school year, you may be able to anticipate for each student, areas that may present instructional problems for you.

© Copyright Teaching Research 1975